**ATTORNEY DOCKET: KCX-1359 (18231)**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**
**Re: Appeal to the Board of Patent Appeals and Interferences**

| | | |
|---|---|---|
| In re Application<br>ERIC E. LENNON ET AL. | ) | Examiner: P. N. BUTLER |
| Serial No.: 10/694,153 | ) | Art Unit: 1732 |
| Filed: October 27, 2003 | ) | Deposit Account: 04-1403 |
| Confirmation No.: 3016 | ) | Customer No.: 22827 |

Title: UNIFORM NONWOVEN MATERIAL AND LAMINATE AND PROCESS THEREFOR

1. ☐ **NOTICE OF APPEAL**: Pursuant to 37 CFR 41.31, Applicant hereby appeals to the Board of Appeals from the decision dated _____ of the Examiner twice/finally rejecting claims _____.

2. ☒ **BRIEF** on appeal in this application pursuant to 37 CFR 41.37 is transmitted herewith (1 copy).

3. ☐ An **ORAL HEARING** is respectfully requested under 37 CFR 41.47 (due within two months after Examiner's Answer).

4. ☐ Reply Brief under 37 CFR 41.41(b) is transmitted herewith (1 copy).

5. ☐ "Small entity" verified statement filed: [ ] herewith [ ] previously.

6. **FEE CALCULATION:**

| | Fees |
|---|---|
| If box 1 above is X'd enter $ 510.00 | $ 0.00 |
| If box 2 above is X'd enter $ 510.00 | $ 510.00 |
| If box 3 above is X'd enter $1,030.00 | $ 0.00 |
| If box 4 above is X-d enter –0- (no fee) | $ 0.00 |

**PETITION** is hereby made to extend the original due date of 4/4/08, hereby made for an extension to cover the date this response is filed for which the requisite fee is enclosed (1 month $120; 2 months $460; 3 months $1,050; 4 months $1,640, 5 months $2,230 $ 120.00

**SUBTOTAL:** $ 630.00

Less any previous extension fee paid since above original due date. - $ 0.00

Less any previous fee paid for prior Notice of Appeal since Board did not render a decision on the merits. MPEP § 1204.01 - $ 0.00

Less any previous fee paid for submitting Brief on prior Appeal since Board did not render a decision on the merits. MPEP § 1204.01 - $ 0.00

**SUBTOTAL:** $ 630.00

If "small entity" verified statement filed ☐ previously,
☐ herewith, enter one-half (½) of subtotal and subtract - $ 0.00

**TOTAL FEE ENCLOSED:** $ 630.00

☐ Fee enclosed.

☐ Charge fee to our Deposit Account/Order Nos. in the heading hereof (for which purpose one additional copy of this sheet is attached)

☒ Charge to credit card (attach Credit Card Payment Form – PTO 2038)

☐ Fee NOT required since paid in prior appeal in which the Board of Appeals did not render a decision on the merits.

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The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any fees in addition to the fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (deficiency only) now or hereafter relative to this application and the resulting official document under Rule 20, or credit any overpayment, to our Account No. shown in the heading hereof. This statement does not authorize charge of the issue fee in this case.

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Date: MAY 5, 2008

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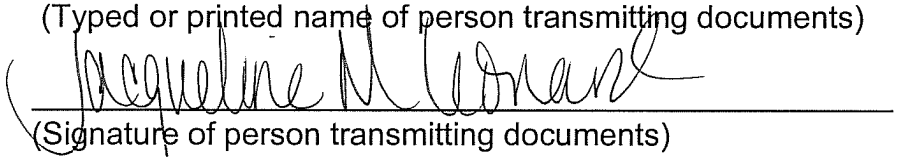
I hereby certify that this correspondence and all attachments and any fee(s) are being electronically transmitted via the internet to the U.S. Patent and Trademark Office using the Electronic Patent Filing System on 5/5/08.

JACQUELINE M. LEONARD
(Typed or printed name of person transmitting documents)



(Signature of person transmitting documents)

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## APPLICANTS' ORIGINAL APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with 37 CFR § 41.37, Applicants hereby submit for the caption application this original appeal brief to the Examiner's Final Action of September 6, 2007.

**1.** REAL PARTY IN INTEREST:

The real party in interest is Kimberly-Clark Worldwide, Inc., the owner of the entire right title and interest.

**2.** RELATED APPEALS AND INTERFERENCES:

None.

**3.** STATUS OF CLAIMS:

Applicant appeals the rejection of all of the non-allowed pending claims 1 – 5, 11, 13 – 16, and 23, which are under final rejection mailed on September 6, 2007. Claims 6 – 10 and 17 – 22 have been withdrawn from consideration.

**4.** STATUS OF AMENDMENTS:

The amendment electronically filed on January 7, 2008, has been entered per the Advisory Action mailed on January 18, 2008, and overcame the rejection of claims 11 and 13 – 16 under 35 U.S.C. § 112, second paragraph.

**5.** SUMMARY OF CLAIMED SUBJECT MATTER:

Independent claim 1:

As explained at page 10, lines 4 – 11 of applicants' specification, an embodiment of a method of making a nonwoven web is schematically shown in FIG. 1.

As schematically shown in FIG. 1 and explained at page 10, lines 13 – 16 of applicants' specification, the method includes providing a plurality of fibers 60.

As schematically shown in FIG. 1 and explained at page 12, lines 8 – 20 of applicants' specification, the fibers 60 are subjected to a pneumatic attenuation force in a drawing slot 70, the attenuation force imparting a velocity to the fibers.

As schematically shown in FIG. 1 and explained at page 13, lines 5 – 15 of applicants' specification, the velocity of the fibers 60 is reduced in a diffusion chamber 80 that is spaced from an exit of the drawing slot in a direction of travel of the plurality of fibers 60, the diffusion chamber 80 being formed substantially between opposed diverging sidewalls 82, 84.

As schematically shown in FIG. 1 and explained at page 14, lines 17 – 21 of applicants' specification, the fibers 60 are subjected to an applied electrostatic charge before the fibers enter the diffusion chamber 80.

As schematically shown in FIG. 1 and explained at page 14, lines 17 – 22 and page 15, lines 1 – 5 and 22 – 24 of applicants' specification, the electrostatic charge is applied by two or more oppositely directed electrostatic charging units 76, 78.

As schematically shown in FIG. 2A and explained at page 15, lines 1 – 24 of applicants' specification, each charging unit 201 includes an emitter device 210 and a target device 230.

As schematically shown in FIG. 2B and explained at page 25, lines 1 – 18 of applicants' specification, at least one emitter device 210 is configured on each side of the fibers 60 so that an electrostatic charge is generated from opposite directions transverse to the direction of travel of the plurality of fibers 60.

As schematically shown in FIG. 1 and explained at page 17, lines 20 – 27 of applicants' specification, the fibers 100 are thereafter collected into a web on a moving forming surface 110.

Independent claim 11:

As explained at page 10, lines 4 – 11 of applicants' specification, an embodiment of a method of making a nonwoven web is schematically shown in FIG. 1.

As schematically shown in FIG. 1 and explained at page 10, lines 13 – 16 of applicants' specification, the method includes providing a plurality of fibers 60.

As schematically shown in FIG. 1 and explained at page 12, lines 8 – 20 of applicants' specification, the fibers 60 are subjected to a pneumatic attenuation force in a drawing slot 70, the attenuation force imparting a velocity to the fibers.

As schematically shown in FIG. 1 and explained at page 13, lines 5 – 15 of applicants' specification, the velocity of the fibers 60 is reduced in a diffusion chamber 80 that is spaced from an exit of the drawing slot in a direction of travel of the plurality of fibers 60, the diffusion chamber 80 being formed substantially between opposed diverging sidewalls 82, 84.

As schematically shown in FIG. 3 and explained at page 16, lines 3 – 19 of applicants' specification, the fibers 60 are subjected to and charged with an applied electrostatic charge while the fibers are in the diffusion chamber 300.

As schematically shown in FIG. 3 and explained at page 16, lines 13 – 27 of applicants' specification, the electrostatic charge is applied by two or more oppositely directed electrostatic charging units 312, 322 wherein at least one electrostatic charging unit 312 includes an emitter device located upon a first one of the diverging sidewalls

310 and a target device located on the opposite diverging wall 320 and a second electrostatic charging unit 322 includes a target device on the first one of the diverging sidewalls 310 and an emitter device on the opposite diverging sidewall 320 so that electrostatic charge is generated from opposite directions between the diverging sidewalls 310, 320 with respect to the direction of travel of the plurality of fibers through the diversion chamber 300.

As schematically shown in FIG. 1 and explained at page 17, lines 20 – 27 of applicants' specification, the fibers 100 are thereafter collected into a web on a moving forming surface 110.

Independent claim 23:

As explained at page 10, lines 4 – 11 of applicants' specification, an embodiment of a method of making a nonwoven web is schematically shown in FIG. 1.

As schematically shown in FIG. 1 and explained at page 10, lines 13 – 16 of applicants' specification, the method includes providing a plurality of fibers 60.

As schematically shown in FIG. 1 and explained at page 12, lines 8 – 20 of applicants' specification, the fibers 60 are subjected to a pneumatic attenuation force in a drawing slot 70, the attenuation force imparting a velocity to the fibers.

As schematically shown in FIG. 1 and explained at page 14, lines 17 – 27 and page 15, lines 1 – 5 of applicants' specification, the fibers 60 are subjected to an electrostatic charge that is applied by an electrostatic charging unit 76 or 78 located on one of the drawing slot sidewalls 72 or 74.

As schematically shown in FIG. 1 and explained at page 13, lines 5 – 15 of applicants' specification, the velocity of the fibers 60 is reduced in a diffusion chamber 80

that is formed substantially between opposed diverging sidewalls 82, 84.

As schematically shown in FIG. 1 and explained at page 17, lines 20 – 27 of applicants' specification, the fibers 100 are thereafter collected into a web on a moving forming surface 110.

As schematically shown in FIGs. 1 and 4 and explained at page 19, lines 10 – 27, page 20, lines 1 – 4 and 16 – 27 and page 21, lines 1 – 3 of applicants' specification, in one embodiment the pneumatic attenuation force is provided by air consisting of attenuation air only entering the drawing slot from the drawing slot sidewall (410 in FIG. 4) opposing the drawing slot sidewall (420 in FIG. 4) upon which the electrostatic charging unit is located. Page 19, lines 19 – 21, of applicants' specification states in particular that high velocity air to attenuate the fibers can be admitted into the attenuation chamber from **either** of air plenums 414 and 424 (FIG. 4), i.e., only one of these plenums, **or both** of these plenums 414 and 424 (FIG. 4). Page 20, lines 23 – 25, of applicants' specification states in particular that it can be advantageous to utilize "attenuation air entering the fiber drawing unit **only** from the opposing sidewall of the attenuation chamber or fiber drawing slot." Emphasis added. Referring to FIG. 4, page 21, lines 2 – 3, of applicants' specification states in particular that "aspirating air may be supplied by **only** nozzle gap 416 in the opposing sidewall 410." Emphasis added.

**6.** GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

The final rejection of claim 23 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

The final rejection of claims 1 and 3 under 35 U.S.C. 103(a) as being unpatentable over Haynes '071 (WO 02/52071) in view of Maggio '134 (WO 00/65134 A1; US Patent No. 6,966,762 B1) and Kisler (USP 4,517,143).

The final rejection of claim 2 under 35 U.S.C. § 103(a) as unpatentable over Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, and further in view of Trimble (WO 93/21370).

The final rejection of claims 4 under 35 U.S.C. § 103(a) as unpatentable over Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, and further in view of Haynes '379 (USP 6,117,379).

The final rejections of claim 5 under 35 U.S.C. § 103(a) as unpatentable over Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, and further in view of Haynes '379 (USP 6,117,379).

The final rejection of claim 11 under 35 U.S.C. § 103(a) as unpatentable over Maggio '381 (FR 2,825,381; USP 6,974,316 B2) in view of Haynes '071 and Kisler.

The final rejection of claim 11 under 35 U.S.C. § 103(a) as unpatentable over Schmit (WO 02/34990 A1; USPAP 2004/0028763 A1) in view of Kisler.

The final rejection of claim 15 under 35 U.S.C. § 103(a) as unpatentable over Schmit (WO 02/34990 A1; USPAP 2004/0028763 A1) in view of Kisler.

The final rejection of claim 13 under 35 U.S.C. § 103(a) as unpatentable over Maggio '381 in view of Haynes '071 and Kisler as applied to claim 11, and further in view of Trimble.

The final rejection of claim 13 under 35 U.S.C. § 103(a) as unpatentable over Schmit in view of Kisler as applied to claim 11, and further in view of Trimble.

The final rejection of claim 14 under 35 U.S.C. § 103(a) as unpatentable over Maggio '381 in view of Haynes '071 and Kisler as applied to claim 11 and further in view of Haynes '379.

The final rejection of claim 14 under 35 U.S.C. § 103(a) as unpatentable over Schmit and Kisler as applied to claim 11 and further in view of Haynes '379.

The final rejection of claim 16 under 35 U.S.C. § 103(a) as unpatentable over Schmit and Kisler as applied to claim 11 and further in view of Haynes '379.

The final rejection of claim 23 under 35 U.S.C. § 103(a) as unpatentable over Maggio '134 in view of Davis et al (USP 6,660,218 B2).

**7.** ARGUMENT:

**A.** The written description for claim 23 is satisfied under 35 U.S.C. § 112, first paragraph.

With respect to claim 23, the Final Office Action contends on page 2 thereof that (emphasis added):

> the claim requires the force of attenuation to be provided "air consisting of attenuation air only entering . . . from the drawing slot sidewall." The Examiner interprets this to mean that no other air may contribute to the attenuation force. This is more than with the Specification's acknowledgement of air entering from a specific sidewall because **the Specification does not preclude air from the other sidewall as the claim does**; the Specification only requires a specific wall to provide air.

Applicants respectfully submit that the specification explicitly discloses at least one embodiment in which air is only admitted from one sidewall and not the other sidewall. Page 19, lines 19 – 21, of applicants' specification states in particular that high velocity air to attenuate the fibers can be admitted into the attenuation chamber from

**either** of air plenums 414 and 424 (FIG. 4), i.e., only one of these plenums, **or both** of these plenums 414 and 424 (FIG. 4). These two plenums 414 and 424 are the only way for attenuation air to get into the embodiment illustrated in FIG. 4. Page 20, lines 23 – 25, of applicants' specification states in particular that it can be advantageous to utilize "attenuation air entering the fiber drawing unit **only** from the opposing sidewall of the attenuation chamber or fiber drawing slot." Emphasis added. Referring to FIG. 4, page 21, lines 2 – 3, of applicants' specification states in particular that "aspirating air may be supplied by **only** nozzle gap 416 in the opposing sidewall 410." Emphasis added.

In accordance with 35 U.S.C. § 112, first paragraph, the originally filed claims constitute part of the written description of the invention. The original "wherein clause" of claim 23 in the application as originally filed stated (emphasis added):

> wherein the pneumatic attenuation force is provided by attenuation air entering the drawing slot **only** from the drawing slot sidewall opposing the drawing slot sidewall upon which the electrostatic charging unit is located.

Applicants respectfully submit that the word "only" in this wherein clause adequately apprises those of ordinary skill that **air is precluded from the other sidewall**. The person of ordinary skill, in the context of the structure disclosed in the specification, would not conclude otherwise. For there is no provision for preventing any air that might enter from the other sidewall from providing some attenuation force.

In the initial Examiner's action mailed on March 22, 2006, claim 23 was not rejected under 35 U.S.C. § 112, first paragraph. In the September 22, 2006 response to this initial Examiner's action, claim 23 was not amended. In the second Examiner's action (mailed on February 9, 2007), claim 23 was not rejected under 35 U.S.C. § 112, first paragraph.

In the June 11, 2007 response to the second Examiner's action, claim 23 was amended so that the "wherein clause" language in amended claim 23 is as follows (with the changes identified by underlining the additions and lining through the deletions):

> wherein the pneumatic attenuation force is provided by air consisting of attenuation air only entering the drawing slot ~~only~~ from the drawing slot sidewall opposing the drawing slot sidewall upon which the electrostatic charging unit is located.

Thus, the present version of the "wherein clause" in claim 23 does not differ substantively from the original language in claim 23, which twice was not rejected under 35 U.S.C. § 112, first paragraph. Since the originally filed claim 23 was directed to this embodiment, it is respectfully submitted that the written description adequately apprised the person of ordinary skill that the applicants had possession of the embodiment described by claim 23.

Moreover, since the "wherein clause" of the originally filed claim 23 provides part of the written description of the invention, applicants have amended the specification in order to expressly state the language that was in original claim 23. Accordingly, this amendment satisfies the written description requirement of 35 U.S.C. § 112, first paragraph, without adding any new matter.

Per the Advisory Action mailed on January 18, 2008, Applicants' Amendment After Final (mailed on January 7, 2008) was entered. That Amendment After Final added the following sentence to page 15 of the specification (emphasis added):

> In this exemplary embodiment, the pneumatic **attenuation force is provided by attenuation air entering the drawing slot only from the drawing slot sidewall opposing** the drawing slot sidewall upon which the electrostatic charging unit is located.

Applicants therefore respectfully submit that the written description requirement under 35 U.S.C. 112, first paragraph, has been satisfied for claim 23.

**B.** Claims 1 and 3 are patentable under 35 U.S.C. § 103(a) over Haynes '071 in view of Maggio '134 and Kisler

The method of making a nonwoven web as called for in claim 1 includes the step of providing a plurality of fibers and the step of subjecting the fibers to a pneumatic attenuation force in a drawing slot. The velocity of the fibers is reduced in a diffusion chamber that is spaced from an exit of the drawing slot in the direction of travel of the fibers. The diffusion chamber is formed substantially between opposed diverging side walls. The fibers are subjected to an applied electrostatic charge before the fibers enter the diffusion chamber. The electrostatic charge is applied by two or more oppositely directed electrostatic charging units. Each of these electrostatic charging units includes an emitter device and a "target" or collector device and are "oppositely directed," i.e., with at least one emitter device on each opposite side of the fibers so that an electrostatic charge is generated from opposite directions across the traveling path of the plurality of fibers. The fibers are then collected into a web on a moving forming surface.

As admitted in the last four lines on page 5 of the Final Office Action, the obviousness rejection based on the combination of Haynes '071 and Maggio '134 in view of Kisler is still lacking an essential feature of claim 1, namely that the electrostatic charge is applied by two or more oppositely directed charging units such that at least one emitter device from at least one charging unit is configured on each opposite side of the fibers so that the electrostatic charge is generated from opposite directions with

respect to the direction of travel of the fibers. Haynes '071 describes and illustrates a single charging unit within the fiber draw unit that includes rows 20 of emitter pins that produce a corona discharge against the target electrodes 22. Neither Haynes '071 nor Maggio '134 discloses or suggests the use of a second one of these charging units oppositely oriented such that the pins 20 would be on the opposite side of the fibers.

Kisler fails to compensate for this deficiency in Haynes '071 and Maggio '134. Haynes '071 and Maggio '134 employ the electrostatic charging units to make the fibers repel one another and thus separate the fibers and impose a preferential orientation of the fibers before the web is formed. As explained for example at Haynes '071 page 1, lines 15 – 17 (emphasis added):

> the controlled application of **electrostatics provides separation of the fibers** or filaments and **directional distribution on the forming surface** to result in webs with desired preferential orientation and resulting web properties.

However, in contrast to Haynes '071 and Maggio '134, Kisler relates to a method and apparatus for uniformly charging a web of material after the web has been wound on roll, transported and then unwound from the roll. Kisler does not relate to charging fibers so that they repel one another and thus separate. Instead, Kisler charges a single coherent web composed of fibers enmeshed into a coherent whole. The whole web in Kisler does not become dissociated into separated fibers by virtue of the web being charged by oppositely directed charging units such that at least one emitter device from at least one charging unit is configured on each opposite side of the web.

Kisler's electrostatic emitters are not employed until long after the fibers have landed on the forming surface, been formed into a web, the web is rolled up into a roll,

the roll is transported and mounted on the Kisler device, and the web is unrolled. Only then do Kisler's electrostatic emitters come into play. Thus, Kisler does nothing to teach the person of ordinary skill about using electrostatic emitters for purposes of separation of fibers or the directional distribution of the fibers before the fibers are collected on the moving forming surface.

Moreover, the structure disclosed in Kisler is not up to the task at hand. As shown in Kisler FIG. 1A, the emitters in the form of stainless steel bristles of brushes 24 and 36 are always physically oriented in the same direction with respect to the machine direction. The bristles are on the same side of the web. Claim 1 requires each of the opposite sides of the fibers to have an emitter. Kisler does not provide an emitter (bristles of brushes 24 and 36) on each of the opposite sides of the finished web, much less on each of the opposite sides of the fiber stream before the fibers are formed into a web and wound into a roll. The Response to Arguments section on pages 3 – 4 of the Advisory Action fails to address this additional deficiency of Kisler.

Additionally, it would appear that Haynes '071 views the teaching of Kisler as merely providing a conventional means for removing or reducing the charge on the web that has undergone all of the aforementioned operations as a consequence of being rolled into a roll, transported and eventually unrolled. This becomes apparent to the person of ordinary skill from the following explanation at Haynes '071, page 12, line 25 through page 13, line 1 (emphasis added):

> If desired, conventional means 15 **for removing or reducing the charge on the web** may be employed such as applying an oppositely charged field or ion cloud.

Thus, the person of ordinary skill is most likely to regard Kisler as merely providing

another method and apparatus for performing this conventional step, which is already known by Haynes '071. Thus, Haynes '071 itself appears to preclude concluding as the Final Office Action proposes, namely, that the person of ordinary skill in the art would derive from Kisler providing an electrostatic charge emitter on each opposite side of a stream of fibers for the purpose of improving the degree of separation of the fibers or imposing a preferential orientation on the fibers. No such suggestion is made either expressly or impliedly in Kisler.

Applicants therefore respectfully submit that claims 1 and 3 are patentable under 35 U.S.C. 103(a) over Haynes '071 in view of Maggio '134 and Kisler.

**C.** Claim 2 is patentable under 35 U.S.C. § 103(a) over Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, and further in view of Trimble

Trimble fails to correct the deficiency noted above in Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1. As per Trimble, page 15, lines 15 – 23 and Figs. 3 and 6, Trimble fails to dispose the pins 72 of any emitters on opposite sides of the fiber stream. Indeed, because this same deficiency is attributable to Haynes '071, Maggio '134, Kisler and Trimble, it appears more strongly than ever that disposing emitters on opposite sides of the fiber stream was not appreciated by persons of ordinary skill in this art. Applicants therefore respectfully submit that claim 2 is patentable under 35 U.S.C. 103(a) over Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, and further in view of Trimble.

**D.** Claim 4 is patentable under 35 U.S.C. § 103(a) over over Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, and further in view of Haynes '379 (USP 6,117,379)

Haynes '379 does not provide an electrostatic charge emitter on each opposite side of a stream of fibers for the purpose of improving the degree of separation of the fibers or imposing a preferential orientation on the fibers. Thus, Haynes '379 fails to correct the deficiency in Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1 noted above in Section **7. B**. Applicants therefore respectfully submit that claim 4 is patentable under 35 U.S.C. 103(a) over Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, and further in view of Haynes '379.

**E.** Claim 5 is patentable under 35 U.S.C. § 103(a) over over Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, and further in view of Haynes '379 (USP 6,117,379)

Haynes '379 fails to correct the deficiency noted above in Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1. Moreover, Haynes '379 does not say anything about making a diverging sidewall become a vortex generator. Haynes '379 FIG. 3 shows the vortex generating arrangements 10 as converging rather than diverging. Each of these deficiencies supports applicants' contention that claim 5 is patentable under 35 U.S.C. 103(a) over Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, and further in view of Haynes '379.

**F.** Claim 11 is patentable under 35 U.S.C. § 103(a) over Maggio '381 in view of Haynes '071 and Kisler.

Independent claim 11 calls for subjecting the fibers to, and charging the fibers with, an applied electrostatic charge while the fibers are in the diffusion chamber. The charge is applied by two or more oppositely directed electrostatic charging units wherein an emitter device of at least one of the units is located upon a first one of the diverging sidewalls in the diffusion chamber. A target device for at least another of the electrostatic charging units also is located on that same first one of the diverging

sidewalls. Thus, with this arrangement, the electrostatic charge is generated from opposite directions by the oppositely directed charging units between the diverging side walls with respect to the direction of travel of the plurality of fibers through the diverging chamber.

Maggio '381 (U.S. 6,974,316) differs from Maggio '134 in that Maggio '381 has one electrostatic charging unit disposed on one of the diverging sidewalls in the diffusion chamber in stead of in the drawing slot. The deficiencies in Maggio '134, Haynes '071 and Kisler have been discussed above, and they remain if Maggio '381 is substituted for Maggio '134. They fail to disclose or suggest to the person of ordinary skill, the placement of emitters on opposite sidewalls of the slot. Maggio '381 does not overcome their main deficiency in the placement of emitters on opposite walls. Accordingly, the combination of Maggio '381 in view of Haynes '071 and Kisler suffers from this same deficiency discussed above in Section **7. B**. They fail to disclose or suggest to the person of ordinary skill, the placement of emitters on opposite diverging sidewalls.

Applicants therefore respectfully submit that claim 11 is patentable under 35 U.S.C. 103(a) over Maggio '381 in view of Haynes '071 and Kisler.

**G.** Claim 11 is patentable under 35 U.S.C. § 103(a) over Schmit in view of Kisler.

The apparatus of Schmit (U.S. Pub. No. 2004/0028763) discloses an arrangement wherein a single charging unit is configured within the diffusion chamber. In particular, referring to Schmit Figs. 2 and 3, the electric field is established between the electrode needles 11 and the target electrode or plate 8. These elements (designated 11 and 8) constitute a single charging unit, and do not satisfy the

requirements of claim 11 calling for two such units to be oppositely disposed. Moreover, Schmit adds no more than does Maggio '381 and Haynes '071 and thus in combination with Kisler continues to suffer from the deficiency noted above in Section **7.B**. They fail to disclose or suggest to the person of ordinary skill, the placement of emitters on opposite diverging sidewalls.

Applicants therefore respectfully submit that claim 11 is patentable under 35 U.S.C. 103(a) over Schmit in view of Kisler.

**H.** Claim 15 is patentable under 35 U.S.C. § 103(a) over Schmit in view of Kisler.

Claim 15 depends on claim 11, and therefore applicants therefore respectfully submit that claim 15 is patentable under 35 U.S.C. 103(a) over Schmit in view of Kisler for at least the same reasons expressed above in Section **7. G** regarding claim 11.

Additionally, claim 15 requires the diverging sidewalls to remain unvented. However, Schmit appears to vent the diverging sidewalls 14, 15 at openings 16 per Schmit paragraph [0021], lines 2 – 5 and FIG. 2 thereof. The Response to Arguments section on pages 3 – 4 of the Advisory Action fails to address this additional deficiency of Schmit in view of Kisler. Applicants therefore respectfully submit that claim 15 is patentable under 35 U.S.C. 103(a) over Schmit in view of Kisler for this additional reason.

**I.** Claim 13 is patentable under 35 U.S.C. § 103(a) over Maggio '381 in view of Haynes '071 and Kisler as applied to claim 11, and further in view of Trimble.

For the reasons already explained above in Section **7. F**, Maggio '381 in view of Haynes '071 and Kisler fail to disclose or suggest to the person of ordinary skill, the placement of emitters on opposite diverging sidewalls. Moreover, as noted above in Section **7. C**, Trimble is not capable of correcting such deficiency. Applicants therefore

respectfully submit that claim 13 is patentable under 35 U.S.C. 103(a) over Maggio '381 in view of Haynes '071 and Kisler as applied to claim 11, and further in view of Trimble.

**J.** Claim 13 is patentable under 35 U.S.C. § 103(a) over Schmit in view of Kisler as applied to claim 11, and further in view of Trimble.

As noted above in Section **7. G**, Schmit in view of Kisler as applied to claim 11 fail to disclose or suggest to the person of ordinary skill, the placement of emitters on opposite diverging sidewalls. As noted above in Section **7. C**, Trimble fails to overcome this deficiency. Applicants therefore respectfully submit that claim 13 is patentable under 35 U.S.C. 103(a) over Schmit in view of Kisler as applied to claim 11, and further in view of Trimble.

**K.** Claim 14 is patentable under 35 U.S.C. § 103(a) over Maggio '381 in view of Haynes '071 and Kisler as applied to claim 11 and further in view of Haynes '379.

As noted above in Section **7. F**, Maggio '381 in view of Haynes '071 and Kisler as applied to claim 11 fail to disclose or suggest to the person of ordinary skill, the placement of emitters on opposite diverging sidewalls. As noted above in Section **7. D** in connection with Haynes '071 in view of Maggio '134 and Kisler as applied to claim 1, Haynes '379 fails to overcome this deficiency of the placement of emitters on opposite sidewalls. Applicants therefore respectfully submit that claim 14 is patentable under 35 U.S.C. 103(a) over Maggio '381 in view of Haynes '071 and Kisler as applied to claim 11 and further in view of Haynes '379.

**L.** Claim 14 is patentable under 35 U.S.C. § 103(a) over Schmit and Kisler as applied to claim 11 and further in view of Haynes '379.

For the reasons explained above in Section **7. G**, the combination of Schmit and Kisler as applied to claim 11 is deficient in disclosing or suggesting the placement of

emitters on opposite diverging sidewalls. For the reasons explained above in Section **7.D**, Haynes '379 does not overcome this deficiency.

Applicants therefore respectfully submit that claim 14 is patentable under 35 U.S.C. 103(a) over Schmit and Kisler as applied to claim 11 and further in view of Haynes '379.

**M.** Claim 16 is patentable under 35 U.S.C. § 103(a) over Schmit and Kisler as applied to claim 11 and further in view of Haynes '379.

Claim 16 depends on claim 11, and therefore applicants respectfully submit that claim 16 is patentable under 35 U.S.C. 103(a) over Schmit in view of Kisler for at least the same reasons expressed above in Section **7. G** regarding claim 11. For the reasons explained above in Section **7. D**, Haynes '379 does not overcome the deficiency in Schmit in view of Kisler.

Moreover, Haynes '379 does not say anything about making a diverging sidewall become a vortex generator. Indeed, as to claim 16, Haynes '379 FIG. 3 shows the vortex generating arrangements 10 as converging rather than diverging.

Applicants therefore respectfully submit that claim 16 is patentable under 35 U.S.C. 103(a) over Schmit and Kisler as applied to claim 11 and further in view of Haynes '379.

**N.** Claim 23 is patentable under 35 U.S.C. § 103(a) over Maggio '134 in view of Davis et al.

Independent claim 23 requires that the pneumatic attenuation force is provided by air consisting of attenuation air only entering the drawing slot from the drawing slot side wall that opposes the drawing slot side wall upon which the electrostatic charging unit is located. Maggio '134 does not have an electrostatic discharge unit in the slot.

The Maggio '134 electrostatic discharge unit is only disposed beneath the diffuser or in the diffuser, but not in the slot.

Davis et al does not include an electrostatic charging unit and thus cannot suggest an orientation of its air nozzle 32 with respect to an electrostatic charging unit.

Moreover, as shown in Davis et al FIG. 1, the air nozzle 32 is directed toward plate 26, which forms part of a diverging passage. Thus, notwithstanding the misleading terminology in Davis et al, it is apparent that the Davis et al nozzle 32 is used in the diffuser portion of the Davis et al apparatus, not in the slot as that term slot must be interpreted as it is used in applicants' specification and claim 23. Thus, Davis et al does not suggest an orientation of its air nozzle 32 that provides attenuation air to the slot in any respect.

In view of these deficiencies, the Maggio '134 and Davis et al combination fails to disclose or suggest attenuation air only entering the drawing slot from the drawing slot side wall that opposes the drawing slot side wall upon which the electrostatic charging unit is located.

Applicants therefore respectfully submit that claim 23 is patentable under 35 U.S.C. 103(a) over Maggio '134 in view of Davis et al.

Conclusion

For the reasons explained above, Applicant respectfully submits that claims 1 – 5, 11, 13 – 16, and 23 are patentable in accordance with the relevant provisions of the statute, the rejections should be reversed, and claims 1 – 5, 11, 13 – 16, and 23 should be allowed to issue in a patent.

8. CLAIMS APPENDIX:

1. (Previously presented) A method of making a nonwoven web, the method comprising:

a) providing a plurality of fibers;

b) subjecting the fibers to a pneumatic attenuation force in a drawing slot, the attenuation force imparting a velocity to the fibers;

c) reducing the velocity of the fibers in a diffusion chamber that is spaced from an exit of the drawing slot in a direction of travel of the plurality of fibers, the diffusion chamber being formed substantially between opposed diverging sidewalls;

d) subjecting the fibers to an applied electrostatic charge before the fibers enter the diffusion chamber, wherein the electrostatic charge is applied by two or more oppositely directed electrostatic charging units with each charging unit including an emitter device and a target device such that at least one emitter device is configured on each side of the fibers so that an electrostatic charge is generated from opposite directions transverse to the direction of travel of the plurality of fibers; and thereafter

e) collecting the fibers into a web on a moving forming surface.

2. (Previously Presented) The method of Claim 1 wherein the electrostatic charging units are in a staggered configuration.

3. (Original) The method of Claim 1 wherein the opposed diverging sidewalls are unvented.

4. (Original) The method of Claim 1 wherein the pneumatic attenuation force is provided by perturbed attenuation air.

5. (Original) The method of Claim 1 wherein at least one of the opposed diverging sidewalls comprises at least one vortex generator.

6. (Withdrawn) An apparatus for forming a nonwoven web comprising:

a) a source of fibers;

b) a fiber drawing slot formed between opposed slot sidewalls;

c) a diffusion chamber formed substantially between opposed diverging sidewalls, the diffusion chamber located below the drawing slot;

d) two or more oppositely directed electrostatic charging units located above the diffusion chamber; and

e) a forming surface for collecting the fibers as a nonwoven web.

7. (Withdrawn) The apparatus of Claim 6 wherein at least one electrostatic charging unit is located substantially closer to the diffusion chamber than at least one other electrostatic charging unit.

8. (Withdrawn) The apparatus of Claim 6 wherein the opposed diverging sidewalls are unvented.

9. (Withdrawn) The apparatus of Claim 6 further comprising a means for providing perturbed attenuating air to the drawing slot.

10. (Withdrawn) The apparatus of Claim 6 wherein at least one of the opposed diverging sidewalls comprises at least one vortex generator.

11. (Currently amended) A method of making a nonwoven web, the method comprising:

a) providing a plurality of fibers;

b) subjecting the fibers to a pneumatic attenuation force in a drawing slot, the attenuation force imparting a velocity to the fibers;

c) reducing the velocity of the fibers in a diffusion chamber, the diffusion chamber being formed substantially between opposed diverging sidewalls;

d) subjecting the fibers to and charging the fibers with an applied electrostatic charge while the fibers are in the diffusion chamber, the electrostatic charge being applied by two or more oppositely directed electrostatic charging units wherein at least one electrostatic charging unit includes an emitter device located upon a first one of the diverging sidewalls and a target device located on the opposite diverging wall and a second electrostatic charging unit includes a target device on the first one of the diverging sidewalls and an emitter device on the opposite diverging sidewall so that electrostatic charge is generated from opposite directions between the diverging sidewalls with respect to the direction of travel of the plurality of fibers through the diversion chamber; and thereafter

e) collecting the fibers into a web on a moving forming surface.

12. (Canceled)

13. (Previously Presented) The method of Claim 11 wherein at least one electrostatic charging unit is located substantially closer to the drawing slot than at least one other electrostatic charging unit.

14. (Original) The method of Claim 11 wherein the pneumatic attenuation force is provided by perturbed attenuation air.

15. (Previously Presented) The method of Claim 11 wherein the opposed diverging sidewalls are unvented.

16. (Original) The method of Claim 11 wherein at least one of the opposed diverging sidewalls comprises at least one vortex generator.

17. (Withdrawn) An apparatus for forming a nonwoven web comprising:

a) a source of fibers;

b) a fiber drawing slot formed between opposed slot sidewalls;

c) a diffusion chamber formed substantially between opposed diverging sidewalls, the diffusion chamber located below the drawing slot;

d) at least one electrostatic charging unit located upon one of the diverging sidewalls of the diffusion chamber; and

e) a forming surface for collecting the fibers as a nonwoven web.

18. (Withdrawn) The apparatus of Claim 17 wherein the opposed diverging sidewalls are unvented.

19. (Withdrawn) The apparatus of Claim 17 comprising two or more oppositely directed electrostatic charging units, wherein at least one electrostatic charging unit is located upon each of the diverging sidewalls.

20. (Withdrawn) The apparatus of Claim 19 wherein at least one electrostatic charging unit is located substantially closer to the drawing slot than at least one other electrostatic charging unit.

21. (Withdrawn) The apparatus of Claim 17 further comprising a means for

providing perturbed attenuating air to the drawing slot.

22. (Withdrawn) The apparatus of Claim 17 wherein at least one of the opposed diverging sidewalls comprises at least one vortex generator.

23. (Previously presented) A method of making a nonwoven web, the method comprising:

a) providing a plurality of fibers;

b) subjecting the fibers to a pneumatic attenuation force in a drawing slot formed between opposed drawing slot sidewalls, the attenuation force imparting a velocity to the fibers;

c) subjecting the fibers to an applied electrostatic charge, the electrostatic charge applied by an electrostatic charging unit located on one of the drawing slot sidewalls;

d) reducing the velocity of the fibers in a diffusion chamber, the diffusion chamber being formed substantially between opposed diverging sidewalls; and thereafter

e) collecting the fibers into a web on a moving forming surface;

wherein the pneumatic attenuation force is provided by air consisting of attenuation air only entering the drawing slot from the drawing slot sidewall opposing the drawing slot sidewall upon which the electrostatic charging unit is located.

**9.** Evidence Appendix:

N/A

**10.** Related Proceedings Appendix:

N/A

Respectfully submitted,

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